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TITLE : MANUFACTURE OF RESISTOR

ABSTRACT : PURPOSE: To facilitate the control of resistance value of the titled resistor by a method wherein a neutral element is ion-implanted into a semiconductor layer together with an impurity element, thereby enabling to make the semiconductor layer amorphous.

CONSTITUTION: A polycrystalline Si is deposited on a thermal oxide film, P ions are implanted thereon, and the Si ions are implanted. Subsequently, an annealing is performed in an N₂ atmosphere. The polycrystalline Si is made amorphous by the implantation of Si ions, and a sheet resistor is changed into a gentle linear form within the range of 10¹⁴~2×10¹⁵cm⁻² of the quantity of P⁺ implantation. Also, the sheet resistance is stabilized with the quantity of implantation of 2×10¹⁵cm⁻² or above, and the resistance value can be controlled very easily. Besides, the order of implantation is not specially limited, but it is better that neutral element ions (Si⁺, Ge and the like) are implanted first in view of the channelling when impurities are ion-implanted. As⁺, B⁺, BF₂⁺ or the like may be used as an impurity element.

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